REMARKS:

In response to the requirement for corrected versions of Figs. 2-6, Applicants submit herewith five replacement sheets of drawings including revised versions of Figs. 2-5. Each of Figs. 2-5 is revised to include the legend "PRIOR ART." Applicants respectfully contend that Fig. 6 complies with all applicable requirements. In particular, Fig. 6 identifies regions "B" and "B1" which are results of a simulation described in the application's specification. The specification neither teaches nor suggests that this simulation is conventional or that the results thereof are conventional. Applicants do not wish to add a legend such as "PRIOR ART" to Fig. 6 because to do so would suggest that the simulation results indicated on Fig. 6 are conventional.

Claims 1 and 4 stand rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Application 2003/0122195 ("Tada"). In response, claims 1 and 4 are hereby amended, and Applicants contend for the following reasons that claims 1 and 4 as amended (and new claims 32 and 33) are patentable over Tada.

Tada describes several PMOS devices (including the device shown in Tada's Fig. 5) but neither teaches nor suggests a PMOS device having an extended drain region including a drain, a deep drain implant, and a lightly doped drain implant between the deep drain implant and the gate, where at least a portion of the lightly doped drain implant is located between the drain and the gate and at least a portion of the deep drain implant is located below the drain, as recited in amended claim 1. As explained in the present application's specification, a device having the structure shown in Fig. 1 of the application (having an extended drain region formed in body 4 and including P-type lightly doped drain implant 6 and P-type deep drain implant 7) can be implemented in accordance with the invention. The lightly doped drain implant 6 and deep drain implant 7 of the extended drain region of this embodiment of the inventive device increase the device's drain breakdown voltage and thus increase its maximum operational voltage.

Although the device shown in Tada's Fig. 5 includes p-type drain diffused layer 314 which underlies p-type drain contact layer 310 (which in turn underlies drain electrode 313), Tada fails to disclose three distinct regions that correspond to the "drain," "deep drain

implant," and "lightly doped drain implant" recited in amended claim 1. Tada's n-type layers 302 and 305 correspond to the "body" recited in claim 1 and thus Tada's n-type layer 302 cannot correspond to the recited deep drain implant element of the recited extended drain region (there could not be a p-n junction such as that between Tada's regions 314 and 302 within an "extended drain region" as recited). Arguably, Tada's p-type drain diffused layer 314 corresponds to the recited deep drain implant and Tada's p-type drain contact layer 310 corresponds to the recited drain, but if so, no element of Tada's Fig. 5 device corresponds to the recited region lightly doped drain implant.

Tada's teaches at paragraph 0159 that p-type drain diffused layer 314 is diffused down to a depth reaching n-type buried layer 302 in order to position a "breakdown point" deep within the PMOS device (at the boundary between layer 314 and buried layer 302). This teaching does not pertain to a PMOS device having the structure recited in amended claim 1, and Tada fails to teach or suggest how to reduce drain breakdown voltage walk-in in a device having the structure recited in amended claim 1. In the structure of claim 1, the recited "lightly doped drain implant" must be sufficiently shallow to prevent significant ion diffusion (during formation of the lightly doped drain implant) under the recited gate and could not extend deeply into the device all the way to the body in which the recited extended drain region is formed. Thus, the implants of the extended drain region of claim 1 could not be formed by diffusion down to the recited body (in which in which the recited extended drain region is formed), in contrast with Tada's drain diffused layer 314 which extends deeply to Tada's buried layer 302.

Claims 1-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Application 2003/0011039 ("Ahlers"). In response, Applicants contend for the following reasons that claims 1-10 as amended (and new claims 32 and 33) are patentable over Ahlers.

Ahlers describes semiconductor devices (including the device shown in Fig. 8A) but neither teaches nor suggests a PMOS device having an extended drain region including a drain, a deep drain implant, and a lightly doped drain implant between the deep drain implant and the gate, where at least a portion of the lightly doped drain implant is located between the

drain and the gate and at least a portion of the deep drain implant is located below the drain, as recited in amended claim 1.

With reference to the device of Ahlers' Fig. 8A, the Examiner contends that layers E_1-E_x correspond to the body recited in claim 1, an element "4" corresponds to the recited extended drain region formed in the body, region 3 corresponds to the recited drain of the recited extended drain region, substrate 1 corresponds to the recited deep drain implant of the extended drain region, element 2 corresponds to the recited lightly doped drain implant of the extended drain region, and that at least a portion of element 2 is located between "drain" 3 and gate G. However, Ahler neither teaches nor suggests such a structure. Instead Ahlers apparently teaches that:

n-type region 2 of Fig. 8A consists of n-type layers E_1-E_x . Ahlers' region 2 cannot be both a "body" as claimed (in which an extended drain region is formed) and a lightly doped drain implant of an extended drain region formed in such body (as contended by the Examiner);

there is no element "4" in Fig. 8A. In Fig. 1, Ahlers does show small p-type regions 4 between n-type layers E_1 and E_2 (and layers E_1 and E_2 of Fig. 1 apparently correspond to layers E_1-E_x of Fig. 8A). It cannot reasonably be contended that p-type regions 4 of Fig. 1 (even if they were present in Fig. 8A) correspond to an extended drain region as recited in claim 1. Further, even if p-type regions 4 of Fig. 1 were present in Fig. 8A, it could not reasonably be contended that n-type region 2 of Fig. 8A is a "lightly doped drain implant" of an extended drain region defined by p-type regions 4;

region 3 is a p-type region formed within n-type layers E_1-E_{2x}. Thus, p-type region 3 cannot be a "drain" portion of an extended drain region as recited in claim 1 if n+ substrate 1 corresponds to a deep drain implant of the extended drain region (as contended by the Examiner) and n-type element 2 corresponds to a lightly doped drain implant of the extended drain region (as contended by the Examiner). There could not be a p-n junction between any two of the recited elements of the extended drain region of claim 1; and

region 1 of Fig. 8A is an n+ substrate. Thus, n+ substrate 1 of Fig. 8A cannot be a "deep drain implant" portion of an extended drain region as recited in claim 1 (as contended by the Examiner) if the extended drain region consists of p-type regions 4 of Fig. 1 (somehow

present in Fig. 8A as contended by the Examiner). There could not be a p-n junction between any two of the recited elements of the extended drain region of claim 1.

Reconsideration and allowance of the claims as amended is respectfully requested.

Respectfully submitted,

GIRARD & EQUITZ LLP

Dated: 1/9/06 By: Alfred Equitz

Alfred A. Equitz
Reg. No. 30,922

Attorneys for Applicant(s)

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